



# UNITED STATES COAST GUARD

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INVESTIGATION INTO THE CIRCUMSTANCES  
SURROUNDING THE LOSS OF THE COMMERCIAL  
FISHING VESSEL

## BETH DEE BOB

O.N. 960023, 15 NM EAST OF MANASQUAN, N. J.,  
ON JANUARY 6, 1999, WITH THE  
LOSS OF FOUR LIVES





16732/MC99000387

MAR 17 2000

**COMMANDANT'S ACTION  
ON THE FORMAL INVESTIGATION INTO THE  
CIRCUMSTANCES SURROUNDING THE LOSS OF THE**

**COMMERCIAL FISHING VESSEL BETH DEE BOB, O.N. 960023,**

**15 NM EAST OF MANASQUAN, N. J., ON JANUARY 6, 1999,  
WITH THE LOSS OF FOUR LIVES**

**ACTION BY THE COMMANDANT**

The report of the investigation into the subject casualty has been reviewed. The investigative report, including the findings of fact, conclusions, and recommendations, is approved.

**ACTIONS ON RECOMMENDATIONS**

**Recommendation 1:** Recommend all clam vessels be required to have stability letters.

**Fifth District Commander's Endorsement:** We concur with this recommendation. A requirement that these commercial fishing industry vessels have formal stability evaluations and possess a stability letter would provide the vessel owner, operator and master with critical information needed to manage or limit cargo loading operations.

**Commandant's Action on Recommendation 1:** We concur. The Office of Operating and Environmental Standards (G-MSO) is in the process of developing stability regulations and watertight integrity regulations under 46 USC 4502 (d) and (e). A joint effort by The Office of Compliance (G-MOC) and The Office of Design and Engineering Standards (G-MSE) developed several "hands on" training devices, including stability trainers, which are being used by both district offices and field units to educate fishermen on vessel stability. In addition a "user-friendly" stability booklet has been drafted, with the consolidated efforts of the G-MOC, G-MSE, the Commercial Fishing Vessel Industry Vessel Advisory Committee, and CCGD17; copies of the booklet have been provided to all district offices and field units for further distribution to commercial fishermen. The Office of Investigation and Analysis (G-MOA) will distribute copies of this report to vessel examiners and commercial fishermen through district CFVS coordinators in order to highlight the importance of vessel stability, with the ultimate aim of preventing similar incidents in the future.

**Recommendation 2:** All clam boat captains should be licensed.

**Fifth District Commander's Endorsement:** We concur with this recommendation. Requiring the crew to hold a merchant mariner's license or document would provide accountability for their actions and should increase the crew's readiness to respond to emergent situations.

**Commandant's Action on Recommendation 2:** We concur. By requiring licensing of the Commercial fishing industry vessel operators, we would increase their qualifications, knowledge, and skills. However, Congress did not authorize the Secretary to prescribe licensing regulations for uninspected fishing vessel operators. A licensing plan was required to be submitted to Congress by the Commercial Fishing Industry Vessel Safety Act of 1988. A plan was submitted in January 1992, however, no action has been taken because there has not been any support or sponsorship. In January 1999, in direct response to several vessel losses and deaths, Coast Guard Headquarters established a Fishing Vessel Casualty Task Force to identify ways to improve safety in the commercial fishing industry. The Task Force delivered a report containing 59 safety recommendations in 7 different categories, 5 which pertained to vessel operator and crew competency. Upon reviewing the recommendations, an action plan was developed by Coast Guard Headquarters, which required a plan to require specific training of fishing vessel crews. With the Commercial Fishing Industry Vessel Advisory Committee (CFIVAC) support, we will seek legislative authority to require a mandatory training program for commercial fisherman.

**Recommendation 3:** Clam boat crews should be required to hold merchant mariner documents.

**Fifth District Commander's Endorsement:** We concur with this recommendation. Requiring the crew to hold a merchant mariner's license or document would provide accountability for their actions and should increase the crew's readiness to respond to emergent situations.

**Commandant's Action on Recommendation 3:** We concur with the intent. Requiring boat crews to hold merchant mariner documents would increase their qualifications, knowledge, and skill. In January 1999, in direct response to several vessel losses and deaths, Coast Guard Headquarters established a Fishing Vessel Casualty Task Force to identify ways to improve safety in the commercial fishing industry. The Task Force delivered a report containing 59 safety recommendations in 7 different categories, 5 which pertained to vessel operator and crew competency. Upon reviewing the recommendations, an action plan was developed by Coast Guard Headquarters, which required a plan to require specific training of fishing vessel crews. With the Commercial Fishing Industry Vessel Advisory Committee (CFIVAC) support, we will seek legislative authority to require a mandatory training program for commercial fisherman.

**Recommendation 4:** The Coast Guard should consider an alternative to be required survival suit for clam boats.

**Fifth District Commander's Endorsement:** We concur with the intent of this recommendation. We agree that an anti-exposure coverall would greatly improve the survival prospects of mariners that might be unable to don a survival suit during an emergency. However, any such anti-exposure coverall must be an optional item to supplement the existing survival suit requirements, not an alternative.

**Commandant's Action on Recommendation 4:** We concur with the intent. We agree that an anti-exposure coverall would greatly improve the survival prospects of mariners that might be unable to don an immersion suit during an emergency. However, any such anti-exposure coverall must be an optional item to supplement the existing immersion suit requirements, not an alternative.

A handwritten signature in black ink, appearing to read "W. D. Rabe". The signature is fluid and cursive, with a large initial "W" and a long, sweeping underline.

W. D. RABE  
By direction

16732  
14 Sep 1999

FIRST ENDORSEMENT on Investigating Officer's ltr 16732 of 18 Aug 1999

From: Commander, Fifth Coast Guard District (Am)  
To: Commandant (G-MOA)

Subj: FORMAL INVESTIGATION INTO THE CIRCUMSTANCES SURROUNDING  
THE SINKING OF THE F/V BETH DEE BOB, O.N. D960023 ON 6 JANUARY  
1999 WITH MULTIPLE LOSS OF LIFE

1. Approved, subject to the following comments.
2. I concur with Recommendations 1, 2 and 3. A requirement that these commercial fishing industry vessels have formal stability evaluations and possess a stability letter would provide the vessel owner, operator and master with critical information needed to manage or limit cargo loading operations. Requiring the crew to hold a merchant mariner's license or document would provide accountability for their actions and should increase the crew's readiness to respond to emergent situations.
3. I concur with the intent but not the wording of Recommendation 4. I agree that an anti-exposure coverall would greatly improve the survival prospects of mariners that might be unable to don a survival suit during an emergency. However, any such anti-exposure coverall must be an optional item to supplement the existing survival suit requirements, not an alternative.
4. I concur with Recommendation 5. MSO/Group Philadelphia shall initiate an investigation to determine if civil or criminal penalty action is appropriate.
5. I recommend this investigation be closed.

  
J. T. KUCHIN

Copy: CG MSO/Group Philadelphia



16732

18 August 1999

From: Investigating Officer  
To: Commandant (G-MOA)  
Via: Commander, Fifth Coast Guard District (Am)

Subj: FORMAL INVESTIGATION INTO THE CIRCUMSTANCES SURROUNDING THE  
SINKING OF THE F/V BETH DEE BOB, O.N.D 960023 ON 6 JANUARY 1999 WITH  
MULTIPLE LOSS OF LIFE

Ref: (a) CCGD5 (Am) Convening Order 16732 dtd 14 Jan 99

1. Per reference (a), the subject investigative report is hereby forwarded. The proceedings of the One-man Formal Investigation commenced on 28 January 1999. The report includes an Executive Summary, Findings in Fact, Conclusions and Recommendations. There are also transcripts of the proceedings and 36 exhibits. The format of the report follows the recommended outline provided by G-MOA, with minor deviations where sections were not applicable or pertinent to this casualty.
2. I call to your attention the many people of Team Coast Guard who assisted in this investigation. The Fifth District public affairs staff kept the hoards of reporters present at the commencement of the hearing informed, but at bay. They succeeded in preparing the media and me for a press briefing that accurately conveyed the Coast Guard's message and was widely reported and carried repeatedly on Cable News Network. CDR Greg Shelton in the legal office repeatedly managed to keep the investigation moving with last minute agreements at the doorstep of federal court. CDR Jim Obernesser in marine safety worked through a weekend to secure funding for the essential remote diving vessel. Station Manasquan and CGC POINT HIGHLAND responded to my call for diving logistics. CGC KATHERINE WALKER gave up a day in port to serve as a platform for diving operations.
3. Two officers deserve special recognition. LT DeWayne Ray of the Marine Safety Center did more than model and analyze stability. He provided expertise and very long hours on scene. His sworn testimony reinforced the Coast Guard's professionalism to all present. LTJG Jason Krajewski of MSO/Group Philadelphia served as my recorder. In addition to being a very skilled investigator, he had the difficult job of keeping order in the most contentious formal hearing of the five in which I have been involved. His skill is evident from the transcript.

16732  
18 August 1999

Subj: FORMAL INVESTIGATION INTO THE CIRCUMSTANCES SURROUNDING THE  
SINKING OF THE F/V BETH DEE BOB, O.N.D 960023 ON 6 JANUARY 1999 WITH  
MULTIPLE LOSS OF LIFE

4. Finally, I salute the 150 members assigned to MSO/Group Philadelphia for the patience necessary to cope with a part-time Executive Officer.



M. D. KEARNEY

Encl: (1) Report of F/V BETH DEE BOB Casualty



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LOSS OF LIFE

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## Executive Summary

Just after dark on 6 January 1999, the fully laden 84 foot, 96 gross ton clam boat BETH DEE BOB sank in a storm approximately 15 miles offshore from her destination, Manasquan Inlet, New Jersey. All four of her crew were lost. Mate Jay Bjornestad's body was recovered approximately one hour and 25 minutes later. He was floating in a life ring with no personal floatation device or survival suit, dead from hypothermia. Deckhand Roman Tkaczyk's body was found in his stateroom by divers weeks later. The captain, Edward McLaughlin, and a second deckhand, Grady Gene Coltrane were never found and are presumed dead.

BETH DEE BOB was owned and operated by PMD Enterprises. PMD was formed by Peter LaMonica and Daniel LaVecchia in 1994 as the ownership vehicle for the purchase of BETH DEE BOB and two other clam boats from the same owner. The purchase represented their entry into the clam harvesting business. With the boats came the crews and any operating procedures they may have had, such as employment contracts and a drug-testing program. LaMonica and LaVecchia formed a second company, Ocean Quahog, Inc. to serve as an operating company for three other boats they demise chartered.

LaMonica and LaVecchia had no knowledge or experience operating boats. Their boats operated independently with no input or interference from the company. PMD hired former clam boat captain Ernest Riccio to coordinate and perform or contract for maintenance above and beyond the abilities of the crews. Boat captains would send their work orders in to Riccio. PMD supported work order requests with funding.

Safe operation of PMD and Ocean Quahog boats was entirely dependent on the captain. The companies obtained all of their boats with captains already aboard. In two changes in captains made during their ownership, it appears that LaMonica moved Joel Stevenson from captain of CHRISTOPHER SNOW to captain of DANIELLE MARIA and Riccio elevated McLaughlin from mate to captain of BETH DEE BOB. There was no process for the company to determine if their boats were operating safely.

While LaMonica felt McLaughlin was an excellent seaman and the best captain they ever had, there were problems with the management of BETH DEE BOB. The other five boats saw virtually no crew turnover, while McLaughlin went through 47 people in four years. He did not conduct required safety drills and ordered his mate to falsify logs in order to obtain his Coast Guard Courtesy Examination Decal. He did not complete the paperwork the company required. He ordered his mate to complete the federal weekly Catch Record and sign under "captain". He did not submit weekly maintenance reports to PMD as required and as the other boats did. Finally and fatally, he ignored the requirements of the vessel's stability letter.

BETH DEE BOB was built in 1990 as a side trawl clam boat. In 1994 there was a major engine room fire. Because of the extensive damage, it was decided to use the down time for a conversion to a stern trawler. This was desirable because of change to clam-

harvesting regulations shifted the objective from fishing as fast as possible during allowable fishing hours to having set quotas and loading the boat as full as possible. Regulations required a stability analysis at the completion of the conversion and this was done by naval architect Lynn White.

White's analysis arrived at maximum capacity of 65 cages of quahogs. Because quahogs are transported for processing by truck, and the trucks hold 14 cages, five full trucks would equal 70 cages. White calculated that by adding ballast, BETH DEE BOB could carry 70 cages. Ballast was added and White issued a stability letter.

The stability letter precisely detailed the proper carriage of 70 cages of quahogs. It called for eleven cages on deck aft and eleven cages worth of quahogs to be carried loose in the clam wells, that is, bulk loaded on plywood placed atop already full cages in the clam wells. The loading requirements were ignored by the company and the captain and thirteen cages were carried aft on deck and eight cages were double-stacked on top of other cages in the forward clam well. This was the case when BETH DEE BOB sank, although the precise number of double stacked cages could not be determined.

The stability letter required all weathertight doors and hatches to be closed when underway. Because cages were double stacked, they rose above the level of the clam well hatches and, therefore, the hatches could not be completely closed. The weathertight engine room door was routinely kept open for ventilation. Images of the wreck show double stacked cages and the engine room door open.

The stability letter also required the clam wells to be kept pumped out at all times while underway. Water would routinely be shipped into the clam wells either from the partially open hatches or through the closed after well hatch that had never been tested for weathertightness. At the time of the sinking the vessel was in heavy seas, yet divers found that the deck manifold was not lined up to pump out the clam wells.

At 0345 on 6 January, McLaughlin, at sea, informed Stevenson, captain of DANIELLE MARIA heading out to sea, that the weather forecast had changed for the worse and was due to hit that night. According to former mate Jimmie Brown, McLaughlin would not double stack cages if he knew the weather would be bad. BETH DEE BOB left the clam grounds 70 miles northeast of Manasquan at 1100 with a full load of clams. He anticipated mooring in the early evening. At 1500 the coastal forecast was for four to five foot seas by midnight. Actual sea conditions of approximately six feet at 1500 were already worse and occurred earlier than predicted.

On the way in, BETH DEE BOB made regular radio contact with Stevenson and his mate, Lawrence Kirk. At 1730 McLaughlin reported that the seas improved once he was inside 18 miles. At approximately 1740 McLaughlin calmly radioed "I'm taking water on big time" and radioed his LORAN coordinates to Kirk. The Coast Guard logged BETH DEE BOB's self-actuating Emergency Position Indicating Radio Beacon (EPIRB) at 1740. There was no further contact with BETH DEE BOB.

**The following witnesses provided testimony for this investigation:**

Quartermaster First Class Horace Browder, USCG  
Group Atlantic City Duty Officer

Fireman Keevan Walker, USCG  
Station Manasquan Watchstander

Aviation Survival Technician First Class Richard Gladish, USCG  
Rescue Swimmer

Aviation Machinist Technician Second Class James S. Bryan, Jr. USCG  
Rescue helicopter flight mechanic

Master Chief Boatswain Mate David English, USCG  
MSO Philadelphia Commercial Fishing Vessel Safety Program Coordinator

Kevin Heying  
Assistant Special Agent in Charge, National Marine Fisheries Service

Gary Szatkowski  
Meteorologist in Charge, National Weather Service Forecast Office, Mt. Holly, NJ

Stephen Sperlak  
Marine Surveyor, Anon Risk Services of Pennsylvania

William J. Becica, Sr.  
Dockmaster, Pt. Pleasant Packing Co,

Kathleen Becica  
Manager, Point Pleasant Packing Co.

Joel E. Stevenson  
Captain, F/V DANIELLE MARIA

Lawrence R. Kirk  
Mate, F/V DANIELLE MARIA

Jimmie Brown  
Former mate and fill-in captain, F/V BETH DEE BOB

William Parlett  
Former fill-in captain and mate F/V BETH DEE BOB

Joseph Christenson  
Owner, Pile Test and leader of first diving operation

Peter A. LaMonica  
President, PMD Enterprises, owner of F/V BETH DEE BOB

Lynn White  
Naval Architect

Robert Dallaury  
Owner, In Depth Marine Construction Co., leader of second diving operation

Ernest Riccio  
PMD Maintenance & Operations Manager

Paul Bogan  
Captain, M/V JAMAICA II

Harold Moyers  
Diver on Dellaury's team

John Graziosetta  
Diesel mechanic, employed by Ocean Quahog Co.

Lieutenant Jerry DeWayne Ray II, USCG  
Naval architect, USCG Marine Safety Center, Washington, DC.

Daniel Crowell  
Self-employed diver working for Dive Masters who was hired by McLaughlin family

## **Findings of Fact**

### **Background of people key to the investigation**

Edward McLaughlin, Captain BETH DEE BOB: McLaughlin worked on BETH DEE BOB since she was built in 1990. When PMD purchased the boat in 1994, McLaughlin was the mate. He was selected as the captain by Riccio about a year later. (826) Riccio, who knew little about the training or experience of any of the company's captains, figured that McLaughlin knew BETH DEE BOB well since he had served aboard since she was built. (1272) McLaughlin's employment record contains no information other than IRS form 1099-misc and chemical testing results. He earned \$82,531 from PMD in 1998. The 1998 Condition and Valuation Survey lists his age as 35. The 1994 report lists his experience as "vessel's mate since new" and that he became captain in approximately April 1993.

Jay P. Bjornestad, Mate BETH DEE BOB: Bjornestad had been fishing for about eighteen years. He did some long-line fishing in Florida, captaining a few boats. Prior to BETH DEE BOB, except for a short job on another boat that did not work out, Bjornestad worked on a dragger, F/V MEGAN AND BETSY out of Shinnecock, NY. He started work on BETH DEE BOB as a deckhand in October 1995. This was his first experience on a clam boat. (581, exhibit 33). The 1998 Condition and Valuation Survey lists him as having three years experience on clam vessels and twelve years experience on fishing vessels. He earned \$62,216 from PMD in 1998. Bjornestad was 38 years old.

Roman Tkaczyk, Deckhand BETH DEE BOB: Tkaczyk signed on aboard LISA KIM, operated by sister company, Ocean Quahog, in August 1997 as a deckhand. He had worked previously for PMD as a shore side mechanic. (1127) There is no information on record as to his experience on clam boats. It cannot be determined from the company's catch records when Tkaczyk began working on BETH DEE BOB because there was another Roman that had served as a deckhand and the records only use first names. His tax records (IRS form 1099-misc) indicate that his earnings in 1997 were from Ocean Quahog Corporation, charterer of LISA KIM and his 1998 earnings were from PMD Enterprises, Inc. He apparently was still working on LISA KIM when he suffered a lacerated finger in May 1998. His employment records also indicate that he quit LISA KIM on September 12, 1998. He earned \$15,818 from PMD in 1998. Tkaczyk was 48 years old.

Grady Gene Coltrane, Deckhand, BETH DEE BOB: PMD had no employment records for Coltrane. (727) He was apparently a recent hire by McLaughlin. (827) Company catch records do not show him on the January 2, 1999 trip or on any other trips. Coltrane was approximately 38 years old.

Jimmie Brown, prior Mate and fill-in Captain, BETH DEE BOB: Brown's first job on a boat was as deckhand on a dragger. He served aboard draggers for seven to eight years, learning on the job. (660) He served as captain of a dragger for two years. (664)

According to his testimony, his training consisted of a course in fire control and vessel safety presented by a local co-op and a course in first aid and CPR. He completed both courses in 1995 while working on a dragger out of Shinnecock, NY. (639, 660) Brown started with PMD in January 1996 as a deckhand aboard both DANIELLE MARIA and BETH DEE BOB. (577) He served aboard BETH DEE BOB from April 1996 to February 1997. (exhibit 9, 615, 638) After six months, he became a mate. (576) He served as captain on a couple of occasions. (668) Brown was Bjornestad's brother-in-law.

William Parlett, prior mate and fill-in captain of BETH DEE BOB: Parlett had been in the clamming business for 25 years, 20 of which as captain. He served as relief mate and captain on BETH DEE BOB four times in 1995. He first filled in for regular mate Jay Gifford. The next time, he filled in for mate Jimmie Brown. After that, he filled in for captain McLaughlin and Brown served as his mate. He was limited as to what he could do because he was recovering from [redacted] surgery [redacted] (730)

Joel E. Stevenson, Captain, DANIELLE MARIA: Stevenson has been captain of DANIELLE MARIA for six years. DANIELLE MARIA is owned by PMD Enterprises. He started on clam boats in 1983 as a deckhand aboard CHRISTOPHER SNOW. He later served as mate and captain of CHRISTOPHER SNOW. (441) All of his experience is on-the-job. He studied, but never completed a home correspondence captain's course. (453)

Lawrence R. Kirk, Mate, DANIELLE MARIA: Kirk joined the Coast Guard in 1969 and served as a third class machinery technician aboard various cutters. He has worked on clam boats for 23 years serving as captain over a period of fifteen years on more than one boat. He has been with PMD aboard DANIELLE MARIA for three years. (547)

Ernest Riccio, Maintenance & Operations Manager, PMD: Riccio has been involved with clam boats since 1974. (1114). He testified once that he served as a clam boat captain for "probably" fourteen years and testified later that he served as captain for "maybe" 17 years. (1105, 1114, 1269). He was hired by PMD as maintenance & operations manager. Subsequently he made several trips on BETH DEE BOB and DANIELLE MARIA serving as mate. (1134) His background includes four years in the Air Force as a weapons specialist, two years working in his family's machine shop, and two years fishing for grouper and snapper in Key West, Florida.

William J. Becica, Jr., Dock Manager, Point Pleasant Packing Company: Becica has been Dock Manager for six years. Prior to that he was a clam boat captain aboard several different boats. He worked on clam boats for 28 years. These included both side and stern rigs. (374)

Lynn White, Naval Architect: White performed the stability analysis following the 1994 conversion. He issued the stability letter. He is currently retired. He had been a self-employed naval architect since 1984, performing 25 or 30 analyses on clam vessels since 1985. He is considered a "qualified individual" under 46 CFR 28.510 for purposes of

determining fishing vessel stability. He previously worked for J. J. Henry Naval Architects where he was Chief, Hull Design and in charge of 50 to 70 engineers and draftsmen. During that time they designed many types of vessels including cargo ships, container ships, tank ships, and Coast Guard vessels. Before that he worked for RW and RC Morrell doing tanker plan approval. He was also Chief Naval Architect for Sea-Land during a period where they were constructing twelve containerships. He received his Bachelor of Science in naval architecture and marine engineering from the University of Michigan in 1955. (896)

Stephen Sperlak, Marine Surveyor: Sperlak performed annual Condition and Valuation Surveys on BETH DEE BOB for Anon Risk Services of Pennsylvania. The surveys were required to maintain insurance coverage. Sperlak has been a marine surveyor for 21 years. He is certified to survey commercial vessels up to 300 gross tons by the National Association of Marine Surveyors. He retired from the Coast Guard as a Chief Warrant Officer 4, his last seven years as a marine inspector qualified to do hull and machinery inspections. Prior to becoming an inspector, he was engineering and damage control officer on a 180-foot Coast Guard buoy tender. (281)

### **Description of the Fishery**

Surf clams are one of the largest bivalves located on the continental shelf of eastern North America. They are predominately found in turbulent waters just outside the breaker zone, to a depth of 130ft. Ocean Quahogs are rarely found when bottom water temperature exceeds 60 degrees F. In the Mid Atlantic region of the United States they are found concentrated in ocean depths of 130 to 200 feet. Surf clams are larger and more desirable, while ocean quahogs are more plentiful.

The clam harvesting industry is regulated by the National Marine Fisheries Service (NMFS), part of the National Oceanic and Atmospheric Administration (NOAA). NMFS began regulating the industry in 1977 for the purpose of conserving the surf clam stock. Initial controls included a moratorium on permits that controlled the total number of vessels licensed to clam, and a limit on the total number of hours or total per week that vessels could clam. In 1988, NMFS and the Mid-Atlantic and New England fisheries management councils undertook a study in response to safety and over-capitalization concerns. The resulting study was presented in 1989 at town meetings up and down the East Coast and the current system, which was derived from that study, was put into effect in June 1990. Under the current system, NMFS fixes the total number of clams permitted to be harvested. Each vessel owner is given a number of tags representative of their portion of the total catch. The tags must be affixed to each cage of clams landed. However, a vessel can utilize any tags available, not only those to which they are entitled. Thus the tags, and the quota, are transferable. (209)

A boat towing a device known as a dredge harvests clams. The dredge is carried on an A-frame on the stern of the vessel and is lowered to the sea floor. An eight-inch diameter hose connects at one end to a high volume seawater pump on the vessel and to the dredge on the other end. As the vessel drags the dredge across the seabed, seawater is pumped

through jets on the leading edge of the dredge. The combination of the water and the leading or "knife edge" of the dredge frees the calms from the clam bed and they collect in the rear or box section of the dredge.

Once the dredge is full, it is hauled up the A-frame and a trap door on the back of the dredge is opened allowing the clams to fall into a large hopper. From the hopper the clams fall onto a shaker which separates the clams from rocks and starfish and drops them onto a mechanical conveyor. The conveyor is fitted with doorways that can be opened or closed to direct the flow of the clams. By this method, clams are directed into steel cages. The cages are three feet square by six feet high and hold 32 bushels or 4800 quahogs. Each empty cage weighs approximately 350 lbs. When filled a cage will weigh approximately 3000 pounds.

The principle finished product for surf clams and ocean quahogs is canned clam chowders, whole and minced clams, breaded clam products, and canned sauces & juices. The catch is typically landed and shipped by truck to a processing plant where the clams are shucked and either canned, frozen, or kept fresh. Fresh clams are sold locally, and the frozen & canned clams are sold to larger companies.

## **Chronology**

### **Loading Information**

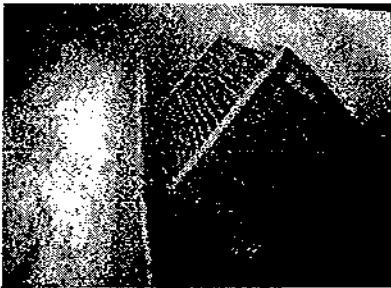
BETH DEE BOB left Point Pleasant Packing Company with what Point Pleasant Packing Dock Manager William Becica said was 67 or 68 empty cages (367). At the time of the casualty she had between 64 and 70 full cages aboard based on the fact that she had ordered five trucks (399) Five trucks hold between 65 and 70 cages of quahogs (443). The configuration of the usual loading of 70 cages, based on the observations of Becica was:

- Forward well – 13 port, 13 starboard (of which 4 in each hold were "double stacked")
- Middle well – 6 port, 6 starboard
- Aft well – 9 port, 9 starboard
- Deck, port side aft – 6
- Deck, port side starboard – 5 (367, 380)
- Hopper – 3 cages loose (370, 592)

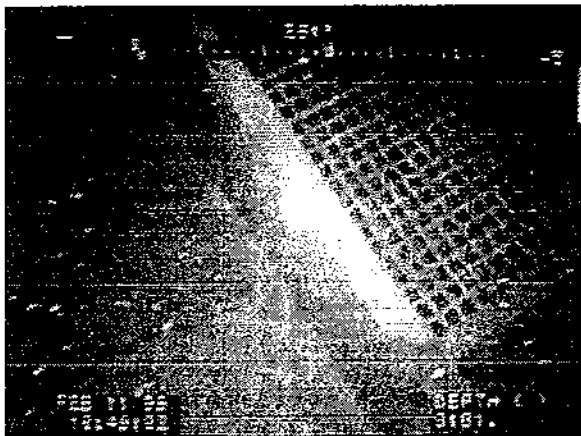
There were no loose quahogs on top of cages. As explained by Becica, he has never heard of anybody bringing in quahogs loose in the clam wells. It would be "pointless" because removing the loose quahogs would be like shoveling "rocks" and it would be very time consuming. (366) Becica stated that if there are extra cages full of quahogs, they are double stacked with the hatch covers slid up tight against them to hold them in place. This was common practice on BETH DEE BOB as well as other boats (367, 380, 383).

Brown collaborated Becica's testimony about eight cages being double stacked. Brown drew a diagram (exhibit 10) and explained how the boat was loaded during his time aboard. He said that the starboard forward well had two rows of two cages double stacked while the port side forward well had the forward row with two cages and one cage each in the second and third rows. The reason for this was to line cages up with the doors in the conveyor belt for ease in loading the cages. (588) Brown testified that when he sailed BETH DEE BOB, 70 physical cages were carried as per exhibit 10, with the difference between his testimony and Becica's being three extra cages aft on deck, and no quahogs carried in the hopper, except on the few occasions when more than 70 cages worth of quahogs were carried. (591) Former fill-in captain/mate Parlett also recalled double stacked cages although he could not remember the exact number and estimated between four and six total in both holds. (736)

Videotape of the wreck shows cages double stacked in the forward clam wells so that the hatches had to have been open. It was not their practice to transport quahogs in the dredge and, in fact, there were no loose quahogs seen in the dredge in videotapes of the wreck. (371, exhibits 21, 22, 23)



Double stacked quahog cage



Toppled over double stacked cage

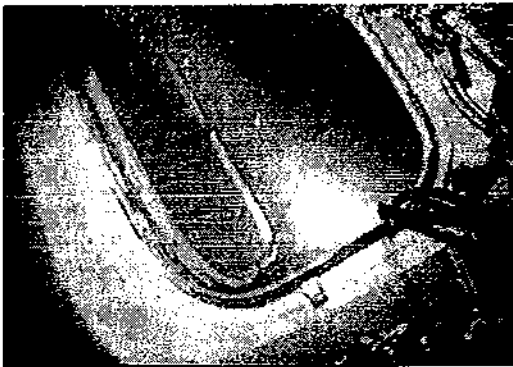
### Securing for Sea

Since there were no survivors there is no evidence of the how BETH DEE BOB secured for sea on this trip. There is some evidence regarding the securing of the port doghouse weathertight door that serves as the entrance to the engine room. There are some

indications of how the boat usually was secured for sea. The port doghouse door leads to a small vestibule with a ladder down to the engine room. As is detailed elsewhere in this report, this door was not considered to be a downflooding point for stability calculations because it was a weathertight door. (915) As such, it was required by the stability letter to be secured weathertight when underway except when actually used under safe conditions. It was also required by the stability letter to be maintained in good condition and periodically checked for the intended tightness.

The port doghouse door is a full-sized door with four dogs and a gasketed surface that closes against a knife-edge (exhibit 23). The door sits on a standard height combing. The hinges are on the forward side of the door and the door opens outward. Just outside the door are clam cages in a deck rack.

Riccio testified that weathertight hatch covers, doors, and scuttles are not periodically checked by him or anyone else except the surveyor during the annual survey. He said the captain and the crew were to maintain them. (1169, 1172) At some point, Riccio had made up a "splash door" that was mounted inside the port doghouse door. He said it was necessary because when they were hosing down the deck during the trip, they were getting shells and sand inside the doghouse and they ruined some equipment. He said that the splash door was easier to shut and that in the summertime, they kept the engine room door open, as did all the boats in summer. (1295)



Port doghouse door showing internal half-door

Former mate Brown testified that he usually had the watch on the way in and when the weather was rough, he always closed the port doghouse door. (600) He provided a videotape given to him by Bjornestad's wife (his sister-in-law) purported to be taken by Bjornestad on the last trip of 1998, a trip to use up the last of the year's allocation of tags. The number of available tags was less than a full load. (690) That videotape (exhibit 13) shows BETH DEE BOB with no cages on deck, with somewhat rough seas and water sloshing on deck. It clearly shows the port doghouse door open during that trip in.



Excerpt from Bjornestad video showing port doghouse door open while underway and with seas sloshing on deck with no cages on deck

Harold Moyers was in the first dive team to go down on the second diving expedition on February 17, 1999 led by Robert Dellaury. He found the port doghouse door open 90 degrees. (1374) This is in keeping with the Coast Guard-directed Remote Operated Vessel dive videotape taken on February 11, 1999 (exhibit 22), which shows the door, open in minutes 17:41 and 19:01. The videotape shows quahogs inside the port doghouse.



Port doghouse door showing half-door opening in and clams piled inside

### **Underway**

There was no testimony as to when BETH DEE BOB left for sea from Point Pleasant. DANIELLE MARIA got underway at 2000 on January 5, heading for Stevenson's spot off Long Island. McLaughlin spoke with Stevenson at approximately 0345 on January 6 from the fishing grounds 70 miles northeast of Manasquan, stating that the fishing was good at his location. Stevenson contemplated fishing with McLaughlin, but McLaughlin informed Stevenson that the weather was predicted to be bad and that he did not recommend that Stevenson fish off Long Island or take the time to travel to BETH DEE BOB's location. (462). Stevenson then listened to the weather and got back to McLaughlin, agreeing that the weather would be bad and informing McLaughlin that he

was changing his plans and was not going to fish at his current location, 38 miles out. (463)

### **Fishing**

DANIELLE MARIA started fishing at 0430 and contacted McLaughlin who said that he had nineteen more cages to catch. (463). Bjornestad later called Stevenson to say that he had "caught his trip" by 1100 and had started steaming in. Bjornestad said that he was already taking spray and water over his bow and that it was "pretty nasty", the wind had "come on quick". Bjornestad called Stevenson at the top of every hour through 1500 and each time stated that he was taking water over his bow and wondering how DANIELLE MARIA could still work. At 1600, McLaughlin relieved Bjornestad of the watch and called Stevenson saying "Joel, you're not still working in this, are you?" Stevenson replied that he was trying to "even his trucks up" in eight-foot seas and that he was going to make this his last tow, and quit with 23 cages (465) The seas were such that DANIELLE MARIA's dredge was starting to come out of the rack while being hauled aboard and this situation contributed to the decision to finish fishing. (556)

### **Transiting from the Grounds**

At 1600, Bjornestad told DANIELLE MARIA mate Kirk that he has lost one knot of speed due to the weather. At sometime within 30 minutes McLaughlin told Kirk that he had been unable to sleep and so he got up. (557) At 1730, Kirk called McLaughlin to ask if conditions had improved. McLaughlin replied that once you get inside eighteen miles, it's good. (558)

### **The Accident**

At 1740, McLaughlin called Kirk and reports that he is "taking water on big time". McLaughlin clearly gives Kirk his LORAN coordinates. Kirk testified that there was distress in McLaughlin's voice while he said he was taking on water, but there was no distress in his voice when he was giving his coordinates. (558, 560) Kirk adjusted his course to head for BETH DEE BOB, which took about five minutes and then tried to raise BETH DEE BOB, first on their working frequency, channel 66, then on their alternate frequency, channel 70, and finally on channel 16, the distress frequency. After ten minutes of attempts, Kirk notified Coast Guard Station Manasquan. (558)

### **Coast Guard Rescue Effort**

At 1740, Fifth Coast Guard District Rescue Coordination Center, Portsmouth, Virginia received an unlocated 406MHz Emergency Position Indicating Radio Beacon (EPIRB) signal from BETH DEE BOB. (exhibit 35) At 1800, RCC notified Group Atlantic City's Operations Center. At 1750, Coast Guard Station Manasquan received a transmission from DANIELLE MARIA relaying a distress call for BETH DEE BOB. The message said that BETH DEE BOB was taking on water and gave the LORAN coordinates. Group Atlantic City received this information from Manasquan via dedicated telephone

line at 1805, immediately following the telephone call from RCC.

Manasquan's search and rescue boat, 41300, was already underway for training in the vicinity of the clam docks and was diverted at 1810. Also at 1810, Group ordered helicopter 6580 to return to base to pick up a pump. The helicopter had been airborne for training in the vicinity of Group/Air Station Atlantic City. At 1820, Group issued an Urgent Marine Information Broadcast. At 1824, helicopter 6580 was on deck at Air Station and was airborne two minutes later with the pump on board. The boat and helicopter arrived on scene within minutes of each other at approximately 1850 and saw a strobe light in the water. Boat 41300 released a datum marker buoy.

Between 1816 and 1826, fishing vessels JAMAICA, CHRISTIAN, CHRISTINA ALEXIA, and FLICKA notified Station Manasquan that they were within several miles of the incident and were diverting to the search area. (exhibit 2) DANIELLE MARIA continued toward the search area, still 30 to 60 minutes away. (561)

Upon arriving on scene, the helicopter's rescue swimmer, ASTI Gladish saw two EPIRB flashing lights. He saw that one was attached to a life ring and he believed that the other one may still have been attached to BETH DEE BOB. They were about 25 yards apart. Gladish saw Bjornestad in the life ring with his face in the water. Within minutes, Gladish was in the water. Bjornestad was not breathing and had no pulse. His hands were wrapped around the life ring line. He was not wearing a PFD or any survival equipment. He was dressed in "street clothes" including coveralls and knee-length rubber boots. Gladish, with some difficulty, placed Bjornestad in the basket and he was hoisted into the helicopter. Since the helicopter was low on fuel, Gladish was left in the water to be picked up by the 41300. The time was 1905.

Other Coast Guard resources were dispatched to the scene. Helicopter 6501 at 1904, motor lifeboat 47227 from Station Barnegat Light at 1938, USCGC POINT HIGHLAND from Cape May at 1937, motor lifeboat 44329 from Station Barnegat Light at 1941. A C-130 aircraft arrived on scene at first light, 0700. In all, three helicopters, 6501, 6511, and 6530 participated in the search. 41300 was ordered to return to Station Manasquan at 1957 because of sea conditions. Rescue swimmer Gladish was aboard.

The search was suspended at 1758 on January 8. The other three crewmembers remained missing. Both life rafts were found. (33, Exhibit AC SITREP 1)

### **Description of Vessel**

Name: BETH DEE BOB  
Official Number: D960023  
Gross Tons: 96  
Net Tons: 65  
Length: 84.3  
Breadth: 26  
Depth: 7.2

Built: 1990  
Hull: Steel  
Fuel capacity: 12,300 gallons  
Fresh water capacity: 6,000 gallons

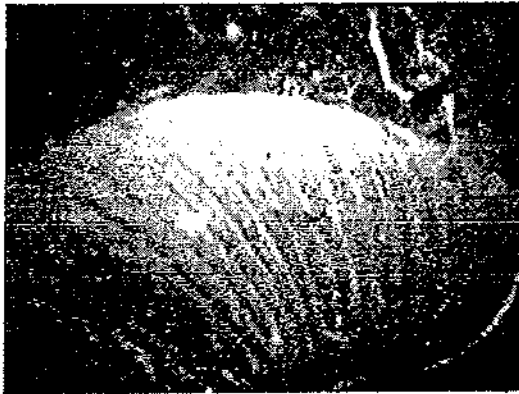
Bock Marine Builders in Beaufort, NC constructed BETH DEE BOB in 1990. She was built for Bob Kelleher using a general plan later used to construct several similar vessels of varying length and breadth. Her high, flared bow won the praises of most observing fisherman, and she was regularly described as a seaworthy vessel. Behind the flared bow and high wheelhouse was a well deck. The original freeboard was roughly two to three feet with higher bulwarks pierced with drainage scuppers. This gave the appearance of a four to six foot freeboard. The steel-hulled vessel was originally configured to carry and simultaneously launch two dredges, one from each side. The design was motivated by surf clam harvesting regulations which from 1977 through the early nineties, managed catches by regulating the maximum number of hours a vessel could clam rather than the total catch. For the vessels, the objective was to catch the maximum amount possible in the allotted time. Propulsion was by a single 1000-horsepower diesel engine driving a single propeller housed in a Kort nozzle.

PMD Enterprises purchased BETH DEE BOB in 1994. Shortly thereafter the vessel sustained an engine room fire caused when oil sprayed from a pressurized hydraulic line while McLaughlin was attempting to repair it. The extent of the damage persuaded PMD to take that opportunity to convert the boat to a stern-rigged dredge. The reason was that since Beth Dee Bob was built, NMFS had instituted new measures for controlling clam harvests. The Individual Transferable Quotas System (ITQ) limited the number of entities licensed to clam as well as the total number of clams to be caught. This eliminated the need to catch large quantities in a short period. Now the vessel could remain at sea as long as necessary, constrained only by the capacity of the vessel, and the condition of the catch (spoilage).

BETH DEE BOB was converted largely by PMD personnel who were overseen and supplemented by Gallagher Marine of Point Pleasant, NJ. While the forward half of the boat remained relatively unchanged, the conversion entailed major alterations to the aft deck and doghouse. Where the original aft deck supported two booms just forward of one large centerline doghouse, the conversion involved the erection of a large A frame and the installation of a hopper situated between two doghouses. The elimination of one dredge eliminated the need for two clam pumps. One was removed and the sea valve was blanked off. Air intakes and exhaust from the engines needed to be rerouted. Where the old piping exited through the centerline doghouse, new exhausts were directed through louvers in the outboard sides of the doghouses. The air intake goosenecks formerly located forward of the booms were removed and a separate set of louvers were installed on the inboard side of the doghouses with electric blowers installed. Some time after the conversion, corrugated plastic ducting was run from the port doghouse directly to each engine's air intake.

The clam wells did not change in the conversion. However, several racks were installed

to facilitate the carriage of cages on deck. The racks were constructed of simple steel tubing welded to the deck. The result was a rise in the BETH DEE BOB's quahog capacity from an original capacity of 48 cages stowed in cages under hatches in the cargo hold to 70 cages.



Corrugated ventilation ducting

### **Cargo Loading**

The clam well was divided by one centerline and two transverse bulkheads creating six individual holds below 4 hatch cover sections. The forward port and starboard holds and the aft port and starboard holds could hold 9 cages of clams each

### **Watertight Subdivision**

The 1998 Condition and Valuation Survey Report describes two void spaces, one on each side outboard of the clam well extending from the galley area bulkhead to the forward bulkhead of the engine room. Entrance to these voids is via small watertight hatches in the engine room. Sperlak testified that the space is usually empty, although on rare occasions something is stored in there. He said that the hatches were in "beautiful condition". He ensures that there is a notice to "keep closed when not in use" over the doors. (295) Brown testified that when he was aboard, the void spaces were used for storage of couplings, bands, and paint and that ninety percent of the time the doors were left open. He said that McLaughlin never instructed the crew to keep the doors closed. (600, 646, 647)

### **Fuel**

BETH DEE BOB usually topped off her fuel tanks after each time they unloaded at Point Pleasant Packing. (397)

### **Ballast System**

The ballast system for the clam holds was a simple venturi/eductor system that utilized the clam pump pressure to draw water from suction lines in each tank. Discharge was

controlled from a manifold located on the starboard quarter between the clam hold and the starboard doghouse. (598, 1183) This type of system is necessary because it is not susceptible to clogging and can pump out shells and other debris. The handles on the valves indicate whether they are open or closed, and so the precise operation underway, flooding or bailing, and which well, can be determined from the position of valves on the manifold. There was no high water level alarm in the clam wells and Riccio noted that he had never seen such an alarm on any boat. (1181)

Riccio allowed that it was possible for sand to clog the suction line in the clam well whereas Brown said that there actually were problems pumping out the clam wells. Brown said that in certain geographic areas where there was a lot of sand on the clams, the suction line at the bottom of the well would become clogged. At these times, the water level in the wells had to be monitored and when it was no longer lowering, the line had to be back flushed. (599, 1185)

### **Bilge Pumping System**

The bilge pumping system consisted of a manifold on the forward bulkhead of the engine room. The installed bilge pump was never used. (1181) Riccio recalled a two-inch pipe that allowed the bilge manifold to be connected to the clam pump. (1185) No further information could be found about this system. Riccio knew of several automatic 110-volt pumps brand-named "Little Giant" that were installed on BETH DEE BOB. (1174) He testified that there was a bilge alarm in the engine room, but was uncertain if the accommodation space had a bilge alarm. He said that the bilge alarm bell could not be silenced. (1180) Riccio also described an engine room video surveillance system consisting of two cameras – one on the clam pump and one with an overall view of the engine room. He felt that the system would show bilge water above the deck plates. (1182)

### **Engine Room Ventilation**

The engine room required an air supply for the cooling of the space as well as for combustion air for the engines. The diesel engines received their combustion air directly from ambient air in the engine room. Two electrically powered blowers, one in each doghouse, ventilated the space. (1428, 1485, 1487) The blowers were bladed fans, possibly belt driven and powered by a 220-volt electric motor. (1489) The capacity of the blowers could not be determined. Graziosetta did not know of any engine room ventilation problems. (1428) He believes that one blower supplied air to the engine room and one exhausted air from the engine room. He described down-facing louvers in the port doghouse about six feet about the deck on the aft side. He could not recall the size of the louvers and was not sure if there were similar louvers on the starboard doghouse. (1487)

Service Order/Invoice P001227 dated May 25, 1995 (exhibit 36) and signed by Graziosetta indicates that he changed the rotation of the ventilation fan in the port doghouse. Riccio knew that the fan is for ventilating the engine room but did not know

that the rotation had changed or why the rotation changed. (1198) Graziosetta did not know why the rotation had changed and did not know who directed that it be changed. (1489)

On October 13, 1995 while the vessel was at Long Island, NY, Riccio subordinates Marian Czekanski and Jerzy Kubiak cut the deck to install a new blower according to Service Order/Invoice P001252 (exhibit 36). Czekanski is a welder. (1106) Riccio had no knowledge of this installation, but speculated that it must have been for the replacement of a blower that went bad. He added that the only blowers aboard BETH DEE BOB ventilated the engine room. (1203) Graziosetta also had no knowledge of the deck cut and blower installation. (1421)

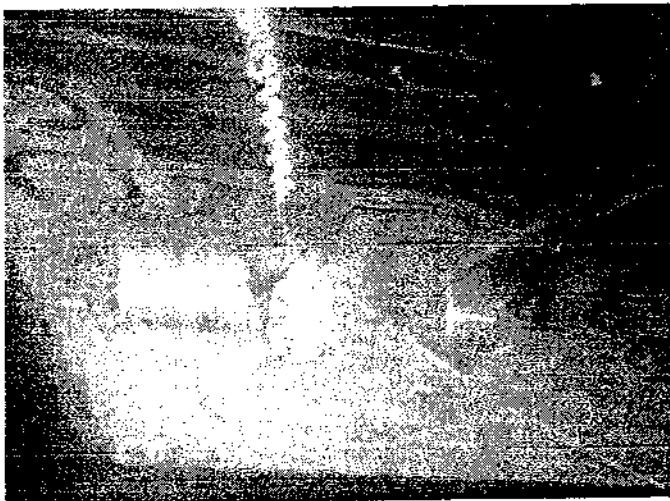
Diver Harold Moyers found his path into the engine room of the wreck hampered by a black, ten to twelve-inch diameter, thin-walled flexible hose. It was held up to the top of the port doghouse by rubber cords. He testified that "...it seemed to be everywhere, I mean, you go one place, it was there, and it was all over the place...". (1390) According to Graziosetta, these hoses were installed because the temperature in the engine room, even in the winter, was 150 degrees and that high a temperature resulted in the engine horsepower loss. As a result, four separate hoses were rigged from the port doghouse. The hoses are visible the videotape of the engine room made by divers (exhibit 23) One hose went to each of the diesel engines, except for the hydraulic engine because it was located just below the doghouse, in close proximity to cooler air, and because it did not have the load demand of the other engines. (1486) Graziosetta's testimony in this regard was very definitive, yet later he testified that he was guessing about the reasons for the installation of the hoses; that he wasn't sure if he ordered the hoses to be installed, and that he did not know if the engines had had performance problems. (1490)

#### **Engine and clam pump control settings at time of casualty:**

Photographs made on the 13 January dive were shown to former mates and captains who served on the vessel. The overwhelming conclusion was that BETH DEE BOB's propulsion engine was in forward gear at idle speed when she sank. Referring to the below photograph, Brown testified, "The black one is to put the engine in and out of gear, that's all the way forward so the engine would be in gear...and the red one is the throttle, which is pulled all the way back, its in the idle position." (607) He further testified that there were two engine control stations in the pilothouse. Brown also identified the lever shown in photographs of the wreck with the radio microphone hanging next to it as the clam pump throttle. He says it appears that the clam pump engine was either off or idling. (604)



Propulsion engine controls: black (left ) is clutch, red throttle



Clam pump engine throttle

### **Condition and Valuation Surveys / Coast Guard Courtesy Examinations**

Stephan Sperlak routinely performed Condition & Valuation Surveys with the vessel afloat. Sperlak is a National Association of Marine Surveyors (NAMS) certified private surveyor who is also authorized by the Coast Guard to complete commercial fishing vessel exams and issue decals. He served on active duty in both the Navy and the Coast Guard and has amassed 21 yrs of experience in the marine industry. Sperlak last examined BETH DEE BOB on April 24, 1998, with a follow-up in August 1998 at which time he issued Coast Guard Commercial Fishing Vessel Decal #72011. Sperlak estimated the boat's replacement value to be \$1,200,000. He described the condition of the vessel as, "The queen of the fleet of the PMD people....one of three clamming vessels that were top notch.....kept in terrific condition" (286)

Stephen Murphy, also a NAMS surveyor handled damage surveys. Murphy attended the

vessel following the engine room fire and during the conversion from side rig to stern rig and on several separate occasions to inspect damage to the Kort nozzle. The vessel was last drydocked at Promet Shipyard in Providence, RI in April of 1997.

## **Stability Analysis and Stability Letter**

As a result of the major conversion from side trawler to stern trawler, a new stability test was required by 46 CFR Subchapter C, subpart E. A stability test was performed on December 21, 1994 by naval architect Lynn White. White is an experienced naval architect and meets the definition of "qualified individual" under 46 CFR 28.510. His job was to ensure that the stability criteria of 46 CFR 28.570 were met. PMD owner LaMonica, his neighbor, hired White. The stability test was performed in Cold Springs, NJ and McLaughlin, Jim Burrows, Riccio, and a deckhand were present.

White issued a Stability Letter dated January 4, 1995. He remembers that the letter and stability analysis was hand-delivered, but he doesn't recall to whom or where. He testified that he normally goes over the terms and limitations with vessel representatives. (906) Riccio says that White conducted no discussions with him and he does not recall that White had discussions with anyone else. (1167) White emphasized that he explains his stability letters to his clients (931) and, that in this particular case, with the conducting of the stability test and the course of adding the ballast, that the conditions would have been gone over and discussed many times. (932) LaMonica says that Riccio gave the stability analyses to every captain and every captain had them on the vessel. He is sure that Riccio went over the analyses with each captain. (872) He knows that Riccio understood the terms of the stability letter since Riccio was present when White performed the test. (877)

The January 4, 1995 Stability Letter limited BETH DEE BOB to 64 cages of quahogs. In the accompanying Intact Stability Analysis, there was a recommendation for the addition of 15,000 pounds of lead ballast forward of frame 5 that would allow the carriage of 70 quahog cages, or the equivalent of five full trucks. The ballast was added on February 16, 1995 and a new Stability Letter dated February 17, 1995 was issued. An Addendum to Intact Stability Analysis (exhibit 16) was done in conjunction with the new Stability Letter but was not formally issued until June 26, 1995. (919)

The February 17th Stability Letter limited the maximum number of cages of quahogs to 70, configured as follows:

- 48 cages in wells below deck
- 11 cages loose in clam wells
- 11 cages on deck aft of well

By "loose in clam wells", White explained that the quahogs are not in cages, but rather piled on top of the cages between bulkheads. (902) When clams are loaded "loose in the clam wells", plywood is placed on top of the cages and loose clams are dropped onto the plywood. Unloading then required the clams or quahogs to be shoveled manually into

cages. (650)

The six-page narrative of the Intact Stability Analysis is straightforward and easy to understand. In the summary in all capital letters is the statement "NO CAGES SHOULD BE DOUBLE STACKED IN THE CLAM WELLS". White stated that he put this statement in because he understood that they had double stacked cages in the past and that double stacked cages would protrude above the hatch combing and that would not be acceptable (911). He further stated that those words did not appear in the actual Stability Letter because the letter had a requirement for all hatch covers to be closed weathertight, and that would not be possible if cages were double stacked.

For the stability analysis, White used the engine room vent on the doghouse as the downflooding point. He recalled that the angle was 37 or 38 degrees depending on the draft (915). The doors to the engine room and wheelhouse were not considered downflooding points because they were equipped with weathertight doors.

White testified that with 70 cages of quahogs and with 90% fuel, oil, and fresh water, with clam wells dry, the mean draft would be 10.1 feet. The freeboard in this condition would be 1.56 feet. (916)

Paragraph 3.c of the Stability Letter states that "no water should be present in the clam wells at any time while underway". By "underway", White meant any time not actively dredging for clams. (929) The second part of his statement in paragraph 3.c states, "a few inches of water in the clam well will cause the same loss in GM (metacentric height) due to free surface as will several feet."

The term "weathertight" appears several times in paragraph 5. White explained that a weathertight closure must withstand a 30 psi hose test without showing any obvious amount of water leakage. He testified that it is not his responsibility to ensure that the openings are weathertight, but his report makes clear what openings he considered to be weathertight for the stability analysis, and those openings are listed in paragraph 5 of the Stability Letter. The Stability Letter reemphasizes the importance of these closures in paragraph 12.c, "all closing appliances, i.e. hatch covers, scuttles, and doors, should be maintained in good condition and periodically checked for the intended tightness."

The Stability Letter closes with a statement that it is the Master's responsibility to maintain the vessel in a safe and seaworthy condition at all times.

### **Compliance with stability letters**

Captain Stevenson testified that the DANIELLE MARIA's stability letter allowed a maximum of 65 cages, three of which were to be carried loose in the after hold. He said that he understood that it had been the intention of naval architect Lynn White, who did the stability test on DANIELLE MARIA, to get as many clams up forward as possible. (443, 551). As a result, a "bucket with a catch release" was developed for moving quahogs forward and into cages. He found that he could fit the three cages worth of loose

quahogs into cages and fit them in forward holds. While the stability letter was never reissued, Stevenson was sure that White would have approved of the change (499). As a result of this investigation, White did reissue the stability letter. (1095)

Jimmie Brown worked seven or eight months on deck and then about a year on the bridge of BETH DEE BOB as mate. (576) He served as captain on a couple of occasions. He too double stacked cages in the forward hold. (668) He has heard the term "stability letter" but had never seen one. He did not know if BETH DEE BOB had a stability letter (687) He knew that BETH DEE BOB was allowed to carry 70 cages because McLaughlin had told him and because there was a plaque posted. (687) Brown testified that McLaughlin would not take a full load if small craft warnings were posted. He could not recall how many less cages McLaughlin would take but felt that it was a number that would result in an even number of trucks and would allow the hatches to be closed. (594, 618) Brown said that there were occasions when clamming was good and they would load in excess of 70 cages of quahogs. He recalled trips in the vicinity of New Bedford when they double stacked five cages on each side and carried the rest in the hopper. (592) Catch records show 71 cages on January 30, 1997 with Brown aboard, 75 cages on October 30, 1997, 71 cages on December 9, 1998. (exhibit 9) Brown was not aboard on the latter two trips. Brown also said that there were trips into Point Pleasant when there were quahogs in the hopper. He pointed out that the videotape he supplied, exhibit 13, verified his statement. (592)

William Parlett had been in the clamming business for 25 years, 20 of which as captain. He served several times as relief mate and captain on BETH DEE BOB in 1995. (731) He testified that McLaughlin told him the capacity of BETH DEE BOB, that he did not see the capacity in writing, that he saw the vessel's stability letter, but that he did not read it. His reason for not reading the stability letter was that it was not necessary, that, "if I felt she was unsafe, I'd get off it". (733) He knew of no limitations on the amount of water allowed in the clam holds when underway, and his own criteria was only that the boat must be maintained on an even keel. He further testified that "you could flood the holds completely, if you wanted to. All it did was make it more stable." (735) Parlett recalled with some uncertainty that there were four or six cages that were double stacked and in that loading condition, the hatches would be open three feet. (736)

Ernest Riccio was involved with clam boats for about 20 years. He testified once that he served as captain for "probably" fourteen of those years and testified later that he served as captain for "maybe" 17 years. (1105, 1114, 1269) Riccio had made several trips on BETH DEE BOB and DANIELLE MARIA as mate. (1134) He testified that he knew the definition of "loose in clam wells" but did not know if BETH DEE BOB ever carried quahogs in that manner (1167). He also testified that he did not know if BETH DEE BOB ever carried cages double stacked. (1168) Riccio was present during the stability test (1163) but did not know how many quahog cages were permitted by the January 1995 stability letter; he first said that he didn't know, then said that it might be 56. (1165) It was actually 64. (exhibit 14) Riccio said that he did not know that there had been a revised stability letter issued. (1166, 1230)

## **Water in the Clam Wells**

As discussed earlier in this report, Paragraph 3.c of the Stability Letter states that “no water should be present in the clam wells at any time while underway. A few inches of water in the clam well will cause the same loss in GM (metacentric height) due to free surface as will several feet.”

There was contradictory testimony about the amount of water shipped into BETH DEE BOB's clam wells. Becica had extensive experience on clam boats including as captain. (373) Although he never sailed on BETH DEE BOB, he speculated that, given that she was a high-bowed boat and that the open clam wells were up forward, solid green water would have to be taken over the wheelhouse in order for water to enter the clam wells. (381, 383) Riccio testified that the way captains determine if they have excess water in clam wells, is not to physically check the level of water in the hold, but rather to observe the effect of that water. This is done by watching the stern of the boat, by watching how much water was coming across the deck or was being taken over the hatch covers. (1207) He said that every boat he has been on got water in the clam wells, and when water was breaking over the hatch covers the pump would run continuously. (1208) Riccio testified that if water filled up the clam well(s) on one side, “the only thing you can do and the fastest thing you do is flood the other side, to try to get the boat stable. To pump it out, it takes quite a bit of time...it's much faster to flood than pump out.” (1254)

Parlett said that there was always water in BETH DEE BOB's clam holds, that he had received no guidance as to what was an acceptable level of water in the clam holds, and that as far as he was concerned the only criteria was to keep the boat level. He added that flooding the clam wells completely would make BETH DEE BOB more stable. He also testified that BETH DEE BOB's holds would become flooded all the time in rough weather. (735)

Parlett was asked about an incident where BETH DEE BOB's rails dipped under when the holds were flooded. He remembered the incident and related that the boat was heading home after clamming and “she took a couple of heavy seas along the fore side”. He reacted by bringing the boat “head to” and starting the pump. He did not know how much water was in the holds because the hatches were closed with the exception of the forward hatches that had double stacked cages in them. He was sure that there was not water in the forward hold because “you couldn't get it up there unless you flipped her over...it would have to be a twenty foot sea to get into the front hold.” Parlett maintains that only the after clam wells would take on water. That water would leak through the closed hatches. He clarified that in the incident mentioned, the holds were not underwater, but rather the boat was listing, maybe five degrees, with an unknown quantity of water in the holds. (739)

## **Clam Well Hatches**

White was asked if he knew if BETH DEE BOB's clam well hatches were in fact weathertight. He said that on a vessel with a hatch combing like BETH DEE BOB, the

hatches are considered to be weathertight if, in determining buoyant volume of the vessel, the volume surrounded by the hatch combing, called the "hatch square", is not used in the calculation. He said he had had verbal discussion with the Coast Guard's Marine Safety Center after the new regulations became effective. He said he was told that they did not recommend taking credit for the buoyant volume of the hatch square. He implied that if the buoyant volume of the hatch square was not considered, no hatches were even necessary, and if there were hatch covers that was all the better and those hatch covers would automatically be considered to be weathertight. (933) The Coast Guard Marine Safety Center expresses its definition and policy on this issue in Policy File Memo 10-85 which is based on 46 CFR 28.5. The Coast Guard considers a hatch to be weathertight if water cannot penetrate into the vessel in any sea condition including boarding seas. If a hatch is weathertight it would not be considered as a downflooding point for intact stability calculations. White maintains that it was not his job to determine if the clam well hatches were, in fact, weathertight. It was simply his job to disclose that he made that assumption for purposes of his calculations (934).

White felt that BETH DEE BOB's clam well hatch covers were of high quality. He did make a recommendation in his stability analysis that a heavy rubber flap be installed athwartships on the ends of the covers to improve the degree of weathertightness. He made this recommendation because the sliding hatch covers overlap one another and there was a gap of an inch or two between them into which water could enter. He says that this configuration is common on vessels with sliding hatch covers and that he normally makes this suggestion. He stressed that it was only a recommendation and that he did not consider it a requirement. He noted that the opening would be facing the opposite direction from the normal flow of water across the hatches. He does not know if the flap was ever installed and does not know if the hatches were ever hose tested. (934)

BETH DEE BOB's hatch covers (and doors and scuttles) were not tested for weathertightness. Riccio implied that they wear out and he builds new ones and he builds them similar to the ones he is replacing. He makes sure that they close tightly but admits that the way to determine if they are satisfactory is to see how much water goes in when you are steaming in rough seas. Riccio was unaware of the technical definition of "weathertight" and stated that it means that "most of the water rolls off". (1169) He did not build BETH DEE BOB's hatches. (1172)

Sperlak said that the clam well hatches were in good condition at his last survey. He said that he could tell they were weathertight by visual inspection. He related that in his last survey, the forward starboard hatch showed signs of wear and he pointed it out and required it to be corrected. The wear was from empty cages sliding on the hatch. Riccio reported to Sperlak in his letter of October 18, 1998 (exhibit 6) that the hatch had been repaired. He had no recollection of a rubber flap between the two hatches. (296)

### **Intact Stability after Downflooding**

Coast Guard naval architect Lieutenant Ray of the Marine Safety Center, Washington, DC, studied BETH DEE BOB's plans, modeled the boat by computer and made the

following determinations:

- If the port doghouse door were open, it would become the downflooding point.
- Flooding the engine room in any condition with a full load of clams would result in the vessel's capsizing
- Water in the aft clam well is worse than water in the forward clam well because it results in more trim by the stern.
- Water in the clam wells negatively affects stability. It results in the vessel failing the regulatory stability criteria, but will not in and of itself cause the vessel to capsize.

(exhibit 24, 1513, 1514, 1520)

## **Vessel Management**

PMD is a company owned wholly by Peter LaMonica and Daniel LaVecchia. It was started in 1994 and represents their entry into the harvesting (boat) business. LaMonica is the president and LaVecchia is the secretary-treasurer. The company has sixteen or seventeen employees comprised of an office staff of three, a maintenance/operations manager (Ernest Riccio), diesel mechanic (John Graziosetta) and a welder (Marian Czekanski). Graziosetta has a helper. (834). Czekanski has a helper named Jerzy Kubiak. The rest of the company employees crewed the three company-owned boats, BETH DEE BOB, DANIELLE MARIA, and JUDY MARIE. LaMonica testified that the Graziosetta and Czekanski worked under Riccio. (815) Riccio says that Graziosetta works independent of him and answers directly to LaMonica and that he and Graziosetta do not get along. (1111, 1197, 1237) LaMonica also owns Ocean Quahog Corporation. This company demise charters three clam boats from Snow Doxie, Inc, a Cape May, NJ company. These boats are CHRISTOPHER SNOW, CORA JEAN SNOW and LISA KIM. Riccio is responsible for all six clam boats. (1112)

LaMonica's family has been in the seafood business for sixty years. They have been in the seafood processing business (shucking, canning, freezing) for fifty years. LaMonica owns forty percent of Dockside Packing, a company that unloads clam boats, and trucks the catch to the plant. He owns fifty percent of Surfside Products, a mechanical quahog shucking plant. He owns fifty percent of Cape May Foods, a surf clam hand shucking company that sells fresh clams or ships canned or frozen clams.

La Monica agrees that it would be accurate to describe his position as president of PMD as part-time. (817). Riccio thinks that neither LaMonica nor LaVecchia had experience in clam fishing. (1113) LaMonica admits to knowing little about the "boating end" of his business but said that he felt his job was to provide his people with the best safety

equipment and funding to supply it. (879)

### **Training and Drills**

Brown testified that there were no safety drills conducted during the time he served aboard BETH DEE BOB. (640) In reviewing a checklist in preparation for a Coast Guard courtesy examination, he pointed out to McLaughlin that the list contained an item about logs of drills performed and that there had been no drills conducted on BETH DEE BOB. Brown says that McLaughlin told him to falsify the log. (614)

PMD sent Stevenson, Kirk and others to the Cape May Commercial Fishing Vessel Safety Association's 16-hour drill conductor workshop in March 1995. Course completion satisfies the requirements of 46 CFR 28.270(a). The Association is an educational subsidiary of the Cape May Seafood Association, Inc. McLaughlin also attended the training. (502, 538, 553)

### **Drug Testing**

Title 46 Code of Federal Regulations Part 16 does not require a chemical testing program for fishing vessels under 200 gross tons. 46 CFR 4.06 requires marine employers to conduct post-incident chemical testing following a Serious Marine Incident. The term Serious Marine Incident is defined in 46 CFR 4.03-2. It includes "an injury to a crewmember which requires professional medical treatment beyond first aid, and, in the case of a person employed on board a vessel in commercial service, which renders the individual unfit to perform routine vessel duties".

LaMonica testified PMD tests all employees for drugs and alcohol on a quarterly basis and that the company maintains a zero tolerance policy. There are no pre-employment or random drug testing programs. LaMonica's memo dated February 17, 1994 (exhibit 32) sets a policy that there is a two-week notice given for drug and alcohol tests and that failure to submit to the test or a positive result will cause immediate termination. He does not know if he has a contract with an outside company to perform PMD's drug testing and concurred that it was done on an ad hoc basis. (834)

LaMonica was not sure if there had ever been any terminations as a result of a positive test. (830) Riccio says he has nothing to do with drug testing and doesn't get the results. He doesn't know of anyone being fired for drug use and it was his understanding that LaMonica and LaVecchia would send anyone who tested positive for rehabilitation. Riccio himself has never been tested. (1118)

Brown testified that during his time aboard BETH DEE BOB, there was not drug or alcohol use while the boat was at sea, but there occasionally was drug and alcohol use while the boat was moored. He recalled that the company had a drug testing program and that crewmembers on other boats were tested, but that BETH DEE BOB's crew never was drug tested while he was aboard. Brown testified that he witnessed cocaine and valium use while the boat was at the pier and that McLaughlin used cocaine and drank

scotch but only when the boat was moored. (581, 685) Subpoenaed Daily Catch Reports for the years 1996 through 1998 show that Brown served aboard BETH DEE BOB from April 1996 to February 1997. (exhibit 8, 615, 638)

Employment records on the four BETH DEE BOB crewmembers showed that McLaughlin was chemical tested in July 1993, November 1994, March 1995. McLaughlin and Bjornestad were tested in March 1997 and McLaughlin, Bjornestad, and Tkaczyk were tested in April 1998. Employment contracts are dated October 1995 for Bjornestad and August 1997 for Tkaczyk. All test results were negative. (exhibits 29, 30, 31) Autopsy reports for Bjornestad and Tkaczyk showed no traces of drugs or alcohol. (exhibits 33 and 34)

McLaughlin and crewmember John Senger were injured in the July 21, 1994 engine room fire. McLaughlin was injured seriously, suffering second and third degree burns on his chest and arms. Coast Guard records indicate he was incapacitated over 72 hours. Riccio said that McLaughlin was hospitalized for "quite a while". (1158) This casualty fits the definition of a Serious Marine Incident which requires the marine employer to conduct chemical testing. There is no indication in McLaughlin's personnel record or in the Coast Guard casualty investigation that chemical testing was performed as required.

### **Company standard operating procedures**

PMD did not have much involvement in the operation of its vessels. LaMonica had no experience in clam harvesting. (816) The company has no operations manual, no standard operating procedures or operational guidelines. LaMonica says that there may be some operating guidelines that came with the previous owners, but he is not sure. (835) He also says that there is a company policy on fire and abandon-ship drills, but he is not familiar with it and it was left up to the captains. (870) Further, he said that there was no written preventative maintenance program for the boats. (875)

Captains on all six LaMonica/LaVecchia boats are required by Riccio to submit maintenance reports on a weekly basis. The reports also serve as requisition requests and requests for maintenance beyond the capability of the crews. Riccio approves the reports/requests and signs them. BETH DEE BOB was "one of the only boats that didn't turn many of these in". Riccio confirmed that it was unusual for the company to have a boat that did not file the report and that he initiated this process so that the captains could document when they requested that something be fixed. (1264, 446)

PMD records revealed that BETH DEE BOB had 47 people who served aboard since 1994, not including the final crew. Riccio testified that the other boats hardly had any turnover and that McLaughlin "had a problem" and as a result had a hard time crewing his boat. Riccio started to explain why, but then said that he had "no idea". (1144)

Brown testified that he had worked on two of PMD's boats, DANIELLE MARIA and BETH DEE BOB. He said that on DANIELLE MARIA the captain did the paperwork, while on BETH DEE BOB, the mate was required to complete the paperwork. The

NMFS weekly Catch Records substantiate this observation as BETH DEE BOB's are signed by mate Bjornestad under "captain or owner signature" and DANIELLE MARIA's are signed by the captain. (exhibit 4, 492, 583)

### **Hiring Practice**

LaMonica says that Riccio hires the captains and the captains hire their own crews. LaMonica knows that Riccio looks for experience in hiring captains, but he has never discussed hiring criteria with Riccio. (823) He says it was Riccio's job to make sure that captains knew what they were doing. (875) Riccio testimony was not definitive in this regard. He says that LaMonica has come to him with prospective candidates for his approval. (1115) Riccio subsequently and emphatically stated that there had never been any captains hired or any changes in captains since he had been with PMD. (1116) LaMonica says that Riccio elevated McLaughlin from mate to captain. (826) LaMonica felt that McLaughlin was an excellent seaman and "probably the best one (captain) we ever had". (857)

Stevenson was hired as captain of DANIELLE MARIA after being interviewed by LaMonica. He thinks that his ten-year tenure with Snows, including four years as mate and eight months as captain of CHRISTOPHER SNOW, led to the job. (443) Since Stevenson was captain of DANIELLE MARIA for six years, it appears that Stevenson was hired soon after PMD purchased the three Kelleher boats. CHRISTOPHER SNOW is one of the boats demise chartered to Ocean Quahog. The record is not clear as to exactly when the demise charter began. Stevenson was apparently hired before Riccio began working for PMD. (1116)

Riccio had heard that LaMonica was looking for a maintenance manager. Riccio told him that he wanted a job "off the water". LaMonica did not know Riccio other than that he ran some boats for Snow. LaMonica said that Riccio is mechanically inclined and knows how to fix clam boats, clam dredges, and clam equipment. (876)

Riccio was unaware that Brown had ever captained BETH DEE BOB, and when informed that it was so, replied that McLaughlin made the decision that Brown would fill in as captain. (1122) When LaMonica was asked if Jimmie Brown was ever fired by PMD, he answered yes, but did not know why. When asked if there was ever a captain or mate named William Parlett, he did not remember. (843)

LaMonica was not certain if crewmembers had employment contracts, but knew that captains and mates did. He wasn't familiar with the terms of those contracts and said that the contracts had come with the boats. (825)

Bjornestad was hired as a deckhand by McLaughlin after meeting him at Captain Norm's bar in Shinnecock, NY, a place where clammers gathered. There is no information as to how McLaughlin evaluated Bjornestad to the mate's position. Brown was interviewed by McLaughlin aboard BETH DEE BOB and hired as a deckhand. (665)

## **External Environment**

A unique factor in the clamming industry is that few, if any, clam boats have refrigerated holds. In fact some have open holds or no holds at all. A result of these designs is that the catch is exposed to weather. In the warm summer months, any catch stored on deck is exposed to sun & heat and will spoil quickly. Consequently, most vessels carry smaller loads in the summer. In BETH DEE BOB's case, summer trips rarely exceeded 24hrs and fewer quahogs were landed. In the winter, the catch can be preserved much longer both in holds and especially on deck in the cold air. As a result, trips on BETH DEE BOB were stretched to 48 hours allowing more dredging time and larger catches. Sea conditions in the North Atlantic Ocean are much more severe in the winter months when the clam boats are most heavily laden.

### **Known weather / sea conditions**

The observed weather data collected from an automated weather station located on Ambrose Light at 1800 on January 6th indicated the temperature was 33 degree F, winds were from the South/Southwest (210 degrees) at 24 to 30 knots and waves were five feet. Ambrose Light is roughly 20 nautical miles north of the location the sunken BETH DEE BOB. National Weather Service Buoy 44025 is positioned much closer to the wreck sight, however it was damaged on January 1, 1999 and was inoperable January 6<sup>th</sup>, the day of the sinking.

DANIELLE MARIA observed beautiful weather up until 1100 on January 6th when the wind began to blow from the southwest. At 1600 at a position roughly 38 miles northeast of Manasquan, DANIELLE MARIA stopped fishing because the seas were so rough, eight to ten feet by their estimate, that the boat could not keep its dredge in the rack. Stevenson went to bed, relieved by Kirk. By 1800, Stevenson estimated that he was experiencing ten-foot seas with some waves reaching fourteen or fifteen feet. (461, 486) Kirk estimated the seas to be ten to twelve feet, with winds 30 to 40 knots while he was on watch. At approximately 1730 McLaughlin reported to Kirk that the seas were good once you get inside eighteen miles and that the seas were "laying down" (558, 559, 565) Kirk estimated the seas to be twelve to fourteen feet at 1930 when they arrived at the last location of BETH DEE BOB. (572)

Coast Guard rescue swimmer Gladish, once recovered by the 41300 at approximately 1900, estimated that the seas at that point were eight to ten feet, with the largest waves up to twelve feet. (100) His assessment was apparently shared by the 41300's coxswain as he radioed the same information back to Station Manasquan. (30, 72)

Paul Bogan, captain of JAMAICA II, saw BETH DEE BOB pass him at a range of about one mile between 1530 and 1545. He was anchored 20 to 21 miles east of Manasquan Inlet. JAMAICA II is a 90-foot party boat out of Manasquan. She had 19 passengers aboard for a 12-hour, 5AM to 5PM, bottom fishing trip. Bogan testified that during the afternoon of January 6th, the seas at his location were generally three to six feet with an occasional larger wave. The wind was 20 to 25 miles per hour from the south. (1332)

Bogan described the seas as "choppy", but "not a problem" and none of his passengers complained. (1338) He said that the sea state did not change during his trip back to Manasquan. (1335) Bogan videotaped BETH DEE BOB as she went by and the sea state on the tape appears, in this investigator's opinion, to be at the high end of his estimation. (exhibit 25)

### **Forecasts**

The National Weather service issued a Small Craft Advisory as a headline to its 1500 forecast. Winds were predicted to be 20 to 25 knots from the South with seas of four to five feet and light snow reducing visibility to about two nautical miles.

Also, it should be noted that the forecast is only considered reliable to a distance of 20 nautical miles offshore. BETH DEE BOB was clamming some 60 to 70 miles offshore, and sank roughly 15 miles offshore, at the edge of the forecast zone.

### **Conclusion**

#### **Possible scenario**

Since there were no survivors or witnesses to this casualty, it is impossible to recreate the events that led to it without some degree of speculation. Based on the facts presented above, below is a possible scenario.

BETH DEE BOB began returning back from the clam grounds at 1100 on January 6th. Mate Bjornestad took the first watch, as the captain had been on watch for at least the prior eight hours. The crew was generally tired from an estimated eighteen hours of clamming, and the deckhands retired below. McLaughlin slept for the next five hours while Bjornestad headed in a southerly or southwesterly direction.

The vessel had caught a full trip of seventy, or nearly seventy, cages and was heading home with the forward hatches open six feet each to accommodate eight double stacked cages. The vessel was heading almost directly into the 30-knot wind and six to eight foot seas, driving spray over the high bow, and slowing the vessel's speed over ground. Moderate quantities of spray were finding their way into the clam wells. Bjornestad, being alone, and in a rough sea, could not run out on deck to line up the valves to pump the clam wells. He remained in the wheelhouse, and continued an inbound transit towards home using the autopilot.

Somewhere around 1600, Bjornestad altered course toward the west. The vessel had most likely hit a waypoint on GPS/LORAN, or crossed the time differential for Manasquan Inlet. Bjornestad altered course, causing the seas to break over the port side bow and midships area. This allowed much more water to enter the holds, and induced a rolling motion. McLaughlin could not sleep in the beam sea and he came to the bridge. The men discussed the weather and the boat's progress. They determined that they were running behind schedule and called the clam dock.

The collecting water in the holds, and the seventy cages of clams trimmed the vessel by the stern. Water sloshed across the deck through scuppers and ran between the clam cages stacked on deck. The rolling became more severe due to free surface effect. One particular roll to port spilled several of the cages on the aft deck and held the port rail under momentarily. Water and clams entered the engine room through the open watertight door and over the half-door, momentarily downflooding into the engine room. Some double stacked cages and cages on deck fell over the port side, unbalancing the load. McLaughlin pulls back the engine throttles and radios DANIELLE MARIA that he is "taking on water, big time." He sends Bjornestad out on deck to align the manifold for pumping the clam holds while he goes to the pump engine control station at the rear of the bridge.

As Bjornestad makes his way across the rolling and wet deck, the vessel rolls to starboard. She does not recover from the roll, as she now has free surface water in the engine room as well as in the clam wells. Clam cages fall to starboard. Bjornestad is carried overboard. The vessel begins settling by the stern. The life raft and EPIRB hydrostatic releases are activated, and two of the life rings and strobes also float free. Bjornestad manages to grab a floating ring and wrap his hands in the lifeline. McLaughlin and Coltrane are either injured in the final moments, or simply unable to reach the remaining life ring or the raft in the cold water.

The vessel strikes the ocean floor stern first, bending the rudder and snapping the pins used to secure the dredge. The starboard outrigger is swept up by the rushing water and the vessel settles to port almost flat on her keel in 115 ft of water 15 miles east of Manasquan Inlet.

### **External Environment**

Although BETH DEE BOB's captain believed the weather was laying down inside eighteen miles, subsequent buoy information indicated that conditions deteriorated over the next several hours. This is consistent with the accounts received from rescuers & observers who responded after the sinking. It is also consistent with JAMAICA II's observation earlier in the day. Since Ambrose Light is north of the wreck site, and the storm was driven by Southwest winds, it is reasonable to assume that conditions were worse than those reported at Ambrose Light, and more consistent with the later 1900 Ambrose readings. At the time of the sinking, winds at BETH DEE BOB's location were likely to have been 25 to 30 knots from the Southwest at a temperature of 32 to 33 degrees. Average wave height was likely six feet with a significant wave height of eight feet in light snow, and two-mile visibility.

### **Causes of the Accident**

#### **Active Failures leading to the Accident**

##### **Active Human Performance Failures**

There was no pumping of the clam wells when the boat sank, and the indication is that there had not been any recent pumping out of the clam wells. Evidence from the wreck show the clam pump engine throttle was found in the idle position and the manifold valves for each clam hold were found closed. With the pump in neutral and the valves closed, it is certain that regardless of whether or not the pump engine was running, BETH DEE BOB was not de-watering when she sank. Since the bilge manifold system can be cross-connected to the clam pump, the engine room was not being pumped through the clam pump.



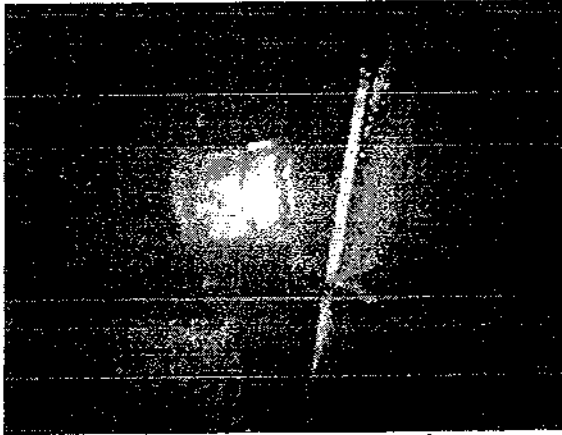
Clam well manifold; all valves are in closed position

Repeated testimony indicated that the clam wells would fill with water regardless of whether the hatches were open or closed. Stephenson said, "In nasty weather, you're always taking water, with hatches or without them, it's the responsibility of whoever is operating the vessel to see to it that in any list you may correct, any early decision [is made] to get rid of the water that's come on the boat." (543-544) More specifically, Parlett relayed a case where while he was the mate, BETH DEE BOB was taking on water in a Southwest sea of five feet, and had a problem, "Southwestern it was breezing up real heavy, and she took a couple of heavy seas along the fore side." (737) When questioned further he stated, "The weather was deteriorating as we were going in, and she slapped it a couple times. I started paying attention and then a good one hit me. I brought it head to, started the pump engines and pumped her out." (749) Most fishing boat captains regarded this as no danger, provided that the crew pumped out the holds. According to the stability analysis prepared by LT Ray, the increase in water in the holds decreased the aft trim and increased free surface effect. These conditions ultimately contributed to the loss of the vessel, and could have been avoided if the pump had been running during the voyage.

### Active Equipment Failures

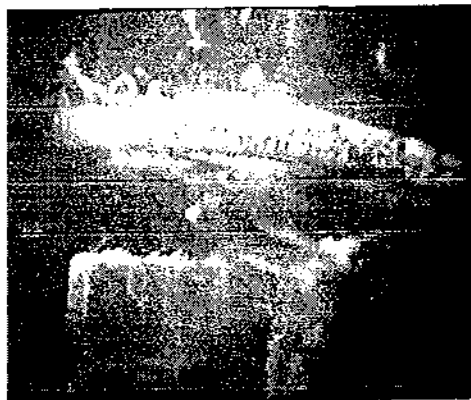
None of the four separate diving expeditions to the vessel uncovered any indication of a catastrophic equipment failure. The hull is fully intact. The propeller was not fouled.

Although the rudderpost is bent forward, the damage appears to have been a result of the vessel's impact with the ocean bottom.



Propeller and rudder of the wreck

The port spool piece and valve were found in tact and closed watertight. The starboard side clam pump suction sea valve was found in the open position, however the clam pump, the pump engine and discharge piping were all found intact. The seachest and suction pipe outboard of the valve could not be examined below the engine room deck plates, however, it is unlikely that this small section of unexamined pipe was breached. No equipment failure appears to have contributed to this tragedy.



Starboard side clam pump sea suction valve showing stem in open position

### **Hazardous Preconditions leading to Active Failures**

#### **Precondition of the People leading to Active Human Performance Failure**

##### **Specific precondition**

Current regulations do not require masters of vessels under 200 gross tons to be licensed. BETH DEE BOB's crew had no formal training. Owner LaMonica testified, "there is nowhere you can go to learn how to clam." While it is true that the skills and knowledge needed to locate and successfully harvest clams are learned through apprenticeship,

knowledge of stability is essential. The boat carried 70 cages of quahogs. Each cage is estimated to weigh more than 3,000 pounds. The clam dredge weighed nearly two tons empty and could carry 3 cages worth of quahogs. This weight of over 6 tons was regularly elevated ten feet above the deck. The crew's lack of understanding of stability was a hazardous precondition that contributed to the vessel's sinking.

#### **Connection to Specific Active Failure**

Stability was detrimentally affected by stern trim. With a full cargo load, there was only about a foot and a half of freeboard. BETH DEE BOB was known as a "wet boat" meaning that there was regularly water on deck. Thus, it was essential that the clam well hatches and engine room door be closed "weathertight." Any breach of these closures resulted in more trim by the stern, even less freeboard, free surface water, and decreased righting capability.

#### **Precondition of the Equipment leading to Active Equipment Failures**

##### **Specific Precondition**

Modifications to aft doghouse during the conversion apparently affected engine room ventilation. This was corrected by ducting fresh air into the engine from the top of the port doghouse using flexible ducting hung from the doghouse overhead. It is likely that the engine room doghouse door was intentionally left open to ensure air supply to the flexible ducting. Evidence to support this is the company's construction of an aluminum half-door to keep spray out but allow air in.

#### **Connection to Specific Active Failure**

The doghouse door was assumed to be closed and weathertight for stability purposes. With the door closed, the vessel's downflooding point was an engine room vent positioned higher off the deck than the bottom lip of the engine room door. Since the door was found to be open it became the down flooding point. Evidence to support the finding that the door was open include dive logs and dive video clearly showing the door open and the fact that quahogs piled inside the door are seen on the video.

#### **Latent Unsafe Conditions Creating the Hazardous Preconditions**

##### **Specific Latent Condition created**

The stability letter's requirement that the last eleven cages worth of quahogs be carried loose in the hold was at odds with actual practice. The naval architect was aware that quahogs had been carried double stacked and specifically prohibited this practice in an easily seen sentence in the stability analysis. Although the boat carried the correct amount of cargo, it was carried in an unsafe manner.

## Connection to Specific Hazardous Precondition

The carriage of more than 59 cages of quahogs in cages rather than loose in the hold was dangerous because it required the clam well hatch to be open. This made the clam wells susceptible to spray and boarding seas. The stability letter specifically required the hatches to be closed weathertight and the wells to be kept pumped out. The clam well hatch covers were never tested for weathertightness and testimony was that the aft hatch, assumed to be closed at the time of the sinking, did leak.

The fact that the boat routinely carried the "eleven cages worth of clams loose in the hold" in cages affected stability due to the shift in weight and location. Eight double stacked cages in the forward hold shifted the weight of those quahogs higher and farther forward than calculated for the stability analysis. Two cages in excess of the eleven allowed aft on deck also adversely affected stability.

## Decisions and Actions of High Level Decision-makers

### Management Ashore

It is probable that PMD's maintenance/operations manager knew the maximum number of cages allowed on BETH DEE BOB, especially since he had sailed as mate on her. It is probable that he was aware of the contents of the stability letter since he participated in the stability analysis.

It is probable that the company's maintenance/operations manager was aware that the boat was double stacking cages. He sailed on clam boats for many years, and had sailed as mate on BETH DEE BOB. In denying knowledge, he would have had to be unaware of the construction of chutes to facilitate the filling of double stacked cages. He would have had to be unaware that the number of empty cages carried on the boat exceeded the number of full cages allowed by the stability letter. He would have had to not notice the number of cages brought in on the Daily Catch Report.

It is also probable that the maintenance/operations manager knew about the engine room ventilation problems. The flexible ductwork had to be purchased. The ductwork had to be evident to anyone entering the doghouse. It is probable that he knew his subordinates cut a hole in the deck for a new blower and that they reversed rotation of a blower. This information was contained on work orders.

The maintenance/operations manager admittedly knew that the doghouse door was kept open in the summer. He admittedly knew about the doghouse "splash" or half-door.

### Standard Operating Procedures

BETH DEE BOB's owners never developed any guidance or operation procedure for their fleet. The vessels were purchased and continued to operate with the same crews and with whatever policies had been in place. The owners were not even aware of what

procedures may or may not have been in place. The owners, including the "fleet manger/port captain" did not develop standard procedures or training with regard to weather, stability and trim, or training and drills. In the absence of any standard policy, all decisions were left to their captains.

The company's captains were not given the tools necessary to make prudent operating decisions. They were required to load their vessels without training in stability. They were required to decide when to fish and when to stay home based on weather reports valid to only 20 miles offshore and no formal training in meteorology or weather forecasting. Even hiring was left to the captains. Frequently, the only conditions of employment were availability and reputation. In the age of Total Quality Management and ISO certification, this company, and this industry overall, lag far behind.

#### Specific Latent Condition Created

##### Larger-scale Market Forces

The crew compensation system of a fixed amount of money per bushel landed encourages overloading or loading beyond what would be considered prudent in a given sea state.

The pressure to land a number of cages equal to a multiple of fourteen is also an incentive to load beyond a prudent amount for conditions. Since the docks and the plant are not co-located, the catch must be shipped by truck. A tractor-trailer can carry a maximum of fourteen cages. Had BETH DEE BOB loaded 64 cages, the clam well hatches could have been closed. This, however, would have required one truck to travel between the dock and the plant with only eight cages. Since the trucking company charges a flat fee per truck, the harvesting/processing cost for those clams is increased. Since the overall market fixes the selling price of the product, the increase in shipping cost directly impacts profit. Five full trucks contain seventy cages.

#### Specific Latent Condition Created

##### Connection to Line Manager Decisions/Actions

BETH DEE BOB's captain gambled on carrying 70 cages or five full trucks. He knew the weather was to deteriorate, but did not know that it would hit sooner than forecasted. Once the additional cages were double stacked and loaded, there was no way to remove or jettison them to close the clam well hatches.

## Failed Defenses

### Failures in existing Defenses that allowed Active Failures to develop into an Accident

#### Human System Failures Aboard Ship

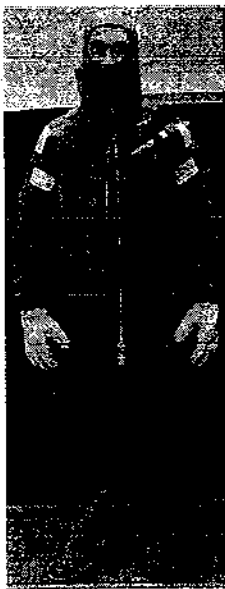
The evidence indicates there was a failure to align the eductor system to pump out the clam wells. Those familiar with BETH DEE BOB indicated that the pump should have been lined up and running in foul weather, and that the pump was capable of emptying the holds in short order.

#### Equipment Failures Aboard Ship

#### Survival Suits

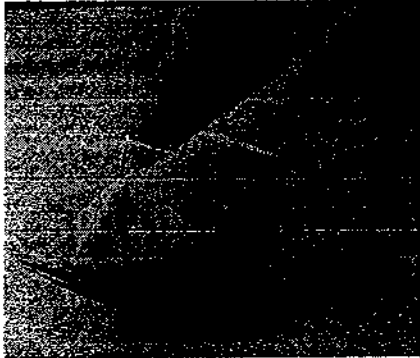
Bjornestad was up and about at the time of the casualty. He was found wearing underwear, thermal underwear, a thermal shirt, a sweatshirt, sweat pants, socks, and high boots. The rescue swimmer noted that Bjornestad was also wearing coveralls when he was recovered from the water. Tkaczyk appeared to have been off duty in his stateroom. His body was found to be wearing underwear, thermal underpants, a long-sleeved button-down shirt with rolled-up sleeves, a long-sleeved sweatshirt and sweat pants. Neither was wearing a PFD of any type. McLaughlin and Coltrane were not recovered. (97, exhibits 33 and 34)

46 CFR Table 28.110 required BETH DEE BOB to have survival suits for each member of the crew. The 1998 Condition and Valuation Survey shows that they were aboard, were stowed properly, and were in good condition. It is not unreasonable to assume that none of BETH DEE BOB's crew was wearing survival suits at the time of the sinking.



Survival suit

It is also not unreasonable to assume the reason they were not wearing the suits. Survival suits are made of a rubber-like material that not only limits movement, but also requires additional effort by the wearer to perform any task. The suit is one piece, some with molded gloves and some with molded mittens. This makes it difficult to perform any task requiring the use of hands. The built-in boots also make it difficult to maintain balance and move about the deck of a rolling boat.



Survival suit boot

In a casualty that occurs with little or no warning, it is therefore not surprising that the crew would not be wearing survival suits. In situations where the vessel is obviously in danger of sinking, if the crew is attempting to save the boat, they would be hampered in performing their duties while wearing the suits. Anyone who has donned a survival suit knows that it is not easy to do. It would be more difficult in a panic situation with personnel wet and cold with possible loss of dexterity of the fingers and hands.

#### Equipment Latent Conditions

The overall condition of BETH DEE BOB and her equipment was excellent. There is no evidence of a catastrophic failure. The hull was not found to be breached or compromised, and no part of the sea chests and clam pump piping was found holed.

Misconduct, Incompetence, Negligence, Use of a Dangerous Drug, and Willful Violation of Law By Individuals holding Coast Guard issued Merchant Mariners' Credential, By an Officer, Employee, or Member of the Coast Guard or By any Other Person

There were no licensed or documented personnel required to be on board or who were involved in this casualty.

There is no evidence that any personnel of the Coast Guard or any other government agency caused or contributed to the cause of this casualty.

There is evidence of negligence by BETH DEE BOB's captain in that he failed to comply with several conditions of the stability letter. 46 USC 2302 contains provisions for civil penalty for negligent operations. The company is culpable for negligence since they knew BETH DEE BOB operated in violation of her stability letter.

## RECOMMENDATIONS

1. All clam boats should be required to have stability letters. These boats handle heavy concentrated loads and pump large amounts of water in and out of the clam wells. They typically have a low freeboard making weathertight doors and hatches that much more essential. It is unfortunate that BETH DEE BOB had such a letter, but chose not to follow it. If all clam boats were required to have stability letters, enforcement of the terms of the letter could be done through at-sea boarding by the Coast Guard.
2. Clam boat captains should be licensed. Captains must demonstrate a good understanding of stability on these "containerships of the fishing industry". They must ensure that the vessel is maintained and operated properly. They must understand human factors such as fatigue, spatial relationships and machinery hazards. They must be held accountable. If the earnings of BETH DEE BOB's captain are indicative of the entire industry, there should be no problem attracting experienced licensed mariners including maritime academy graduates.
3. Clam boat crews should hold merchant mariner documents. Unsuspecting people are recruited as deckhands with the lure of making \$400 or \$500 in a couple of days. They have no idea of the dangers involved. In this case, one deckhand was making his first trip. In some cases, college students sail as deckhands to earn extra money. Documenting the crews would increase awareness and help bridge the gap between fishermen and mariners. While drug use was not a factor in this case, requiring documented personnel would ensure that crews in this dangerous industry would be drug free.
4. The Coast Guard should consider an alternative to the required survival suit for clam boats. Clam boats have a history of sinking in catastrophic, instantaneous events. In the 1998-1999 winter, nearly a dozen clammers died when they had no time to don the suits. Crews are bundled up in layers of clothing to keep warm while they work. They cannot perform their duties wearing survival suits. Given the location of the clam grounds and a properly operating EPIRB, rescue should not be more than two hours away. If there were a comfortable anti-exposure coverall that could ensure a two-hour survival time, clammers could comfortably wear it on a routine basis in place of the bulky layered clothing they presently wear.
5. Further investigation of PMD Enterprises for violation of 46 USC 2302 (a) and/or (b), negligent operations, is recommended.
6. I recommend that this investigation be closed.

Some information in this report is being withheld  
under 5 U.S.C. Section 552(b)(6).